AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A chemically bonded biomaterial element composed of an inorganic cement, exhibiting minimal dimensional changes upon hardening and long-time use, improved mechanical properties and improved translucency characterised in an algorithm to describe the micro-structure, which is expressed as

$$\lambda = \frac{d * (1 - V_F)}{(V_F)}$$

where λ is the distance between filler particles of mean size d, and V_F is the volume content of non-reacted cement and added filler, and where ~~$\lambda = 10\ \mu m$~~ $\lambda \leq 10\ \mu m$.

2. (Currently Amended) A biomaterial element according to claim 1, characterised in that ~~$\lambda = 8\ \mu m$~~ $\lambda \leq 8\ \mu m$, even more preferred ~~$\lambda = 4\ \mu m$~~ $\lambda \leq 4\ \mu m$ and most preferred ~~$\lambda = 2\ \mu m$~~ $\lambda \leq 2\ \mu m$.

3. (Original) A biomaterial element according to claim 1 characterised in that V_F is less than 50 %, preferably 5-45 % and even more preferred 15-35 %.

4. (Previously presented) A biomaterial element according to claim 1, characterised in that it exerts a pressure or tensile force of < 5 MPa, even more preferred < 2 MPa and even more preferred < 1 MPa, on a surrounding volume.

5. (Previously presented) A biomaterial element according to claim 1, characterised in that the inorganic phase is composed of Ca-aluminate and/or Casilicateand/or Ca-phosphate.

6. (Previously presented) A biomaterial element according to claim 1, characterised in that the inorganic phase is composed of phases in the $CaO\text{-}Al_2O_3$ system, i. e. CaO, $(CaO)_3Al_2O_3$, $(CaO)_{12}(Al_2O_3)_7$, $CaOAl_2O_3$, $(CaO)(Al_2O_3)_2$, $(CaO)(Al_2O_3)_6$ and/or pure $A1_2O_3$ with varying relative contents, where the preferred main phases are$CaOA1_2O_3$ and $(CaO)(Al_2O_3)_2$ and the most preferred main phase is $CaOAl_2O_3$, a particle size of formed hydrates of these phases being below 3 μm, even more preferred below1, μm and most preferred below 0.5 μm.

7. (Previously presented) A biomaterial element according to claim 1, characterised in that it also comprises an organic phase of preferably polyacrylates and/or polycarbonates and preferably at a volume content of < 5 %.

8. (Previously presented) A biomaterial element according to claim 1, characterised in that added inert filler particles have a particle size below 5 μm, even more preferred below 2 μm.

9. (Original) A biomaterial element according to claim 8, characterised in that added filler particles consist of glass particles, apatites, brucite and/or bohmite.

10. (Previously presented) A biomaterial element according to claim 1, characterised in that it comprises in-situ formed apatite or some other phase that separates the formed hydrates of the main system.

11. (Previously presented) A biomaterial element according to claim 1, characterised in that a total porosity is below 10 %, even more preferred below 5 %, distributed on minipores having a diameter below 0.5 μm, even more preferred below 0.1 μm, to an extent of at least 90 % of the total porosity.

12. (Previously presented) A biomaterial element according to claim 1, characterised in that it is a dental material, preferably a dental filling material or a root filling material.

13. (Previously presented) A biomaterial element according to claim 1, characterised in that it is an orthopaedic material or a bone cement.

14. (Previously presented) A biomaterial element according to claim 1, characterised in that it is a component or is in granule form, preferably as a carrier material for drug delivery.

15. (Previously presented) A device in connection with the preparation of a chemically bonded biomaterial element according to claim 1, from a powdered material comprising a binder phase and a liquid reacting with the binder phase, characterised in that said device comprises a first container (5) that contains the powdered material, and a second container (3) that contains

said liquid reacting with the binder phase, and an openable closure (3) between the containers (5,3).